REMARKS

In response to the Office Action mailed August 27, 2004, Applicants respectfully request reconsideration of the Application in view of the foregoing Amendments and the following Remarks. The claims as now presented are believed to be in allowable condition.

Claims 2 and 16 have been canceled, and claims 1, 3, 6, 12, 15, 17, and 20 have been amended. Claims 1, 3-15, and 17-25 remain in this application, of which claims 1, 12, and 15 are independent claims.

Claim Objection

Claim 3, line 6 is objected to because "force" lacks proper antecedent basis. Claim 3, line 6 has been amended to no longer recite the "force".

Rejection of Claims 1, 3-4, 7-8, 10-15, 17-18, 21-22, and 24-25 under 35 U.S.C. §102(b)

Claims 1, 3-4, 7-8, 10-15, 17-18, 21-22, and 24-25 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as "Pickles"). Applicants respectfully traverse this rejection.

The Examiner states that the term "a lateral direction of force" is too broadly recited and does not define which direction is a side direction. Applicants respectfully thank the Examiner for her suggestion to more clearly define and recite the term "a lateral direction of force" in the claims.

Accordingly, claims 1, 12, and 15 have been amended to recite that the lateral direction of the force applied on the pin is always perpendicular to a length of the pin such that the force applied on the pin is never directed toward the IC device. Such a lateral direction of force is described and illustrated by the arrow under the actuation plate 216 in Figs. 6 and 7 of the Present Application.

In contrast, referring to Figs. 12, 13, 14, and 15 of Pickles, during the process of coupling the fingers 318 to the contact balls 310 of the IC device 312, the rigid member 306 is moved vertically to the up position in Fig. 13 from the down position in Fig. 12. Thus, during such a

vertical movement of the rigid member 306, ***both vertical*** and lateral directions of force are applied on the contact balls 310 of the IC device 312.

Eventually, after the rigid member 306 is moved vertically to the up position in Fig. 13, the fingers 318 exert a lateral force around the 360° of the spherical contact balls 310. However, before then, as the rigid member 306 is moving vertically up, ***both vertical*** and lateral directions of force are applied on the contact balls 310 of the IC device 312.

Such a vertical up direction is toward the IC device 312 in Pickles. As a result, Pickles does not even remotely suggest the claim limitation of the lateral direction of the force applied on the pin being always perpendicular to a length of the pin such that the force applied on the pin is ***never directed*** toward the IC device. In Pickles, as the rigid member 306 is moving vertically up, a vertical force component directed toward the IC device 312 above the contact balls is created.

The reason for such a difference of directions of force between the Present Application and Pickles arises because Pickles is directed to a BGA (ball grid array) IC package whereas the present invention is directed to an IC package with pin leads (as illustrated in Figs. 5-10 of the Present Application).

Applicants of the Present Application recognized deleterious effects on the more fragile pin (for example a vertical direction of force is likely to bend the fragile pin) and also on the body 106 of the IC device (as the force with a vertical direction toward the IC device is likely to be transferred to the IC device). Thus, only a lateral direction of force is applied on the pin with the lateral direction being always perpendicular to a length of the pin such that the force applied on the pin is never directed toward the IC device, as recited in amended claims 1, 12, and 15.

In contrast, Pickles touts using the BGA (ball grid array) IC package with the more chunky contact balls. In fact Pickles teaches away from using the pin leads at col. 1, lines 10-17 of Pickles:

> ....BGA package benefits include compact size, superior signal integrity, and low profile. By contrast with a quad flat package and other surface mount devices, a BGA

package does not require a fine lead pitch that is necessary when lead are disposed only about the perimeter of a package. Thus, the BGA package is not subject to the demanding tolerance requirements associated with such fine lead pitch packages.

Thus, Pickles touts using the BGA (ball grid array). Because the contact balls of the BGA package are chunkier, Pickles is not concerned that ***both vertical*** and lateral directions of force are applied on the contact balls as the rigid member 306 is moved vertically up and down between the alternating positions of Figs. 12 and 13. Pickles is not even remotely concerned with avoiding assertion of any vertical component of force on the fragile thinner pins. Thus, Pickles which teaches away from using the pin leads does not even remotely suggest or motivate avoiding assertion of any vertical component of force on the fragile thinner pins.

Anticipation of a claimed invention requires the presence in a single prior art document of ***each and every*** element of the properly construed claim. The Federal Circuit has set out the following requirements for anticipation pursuant to 35 U.S.C. §102:

...that a patent claim is anticipated under 35 U.S.C. §102 "must demonstrate, among other things, identity of invention."...[O]ne who seeks such a finding must show that each element of the claim in issue is found, either expressly or under principles of inherency, in a single prior art reference, or that the claimed invention was previously known or embodied in a single prior art device or practice.

Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc., 976 F.2d 1559, 1565 (Fed. Cir. 1992).

In addition, claims 1 and 15 have been amended to recite that a compression mount lead on the socket ***is compressed against*** the contact pad of the circuit board. The Examiner cites elements 114 of Fig. 8, 202 of Fig. 11, and 314 of Fig. 12 in Pickles as such a compression mount lead.

However, Pickles states that the lead 114 is insertion fitted or surface mounted into the circuit board 102 as stated at col. 4, lines 39-61 of Pickles:

In another embodiment shown in Figs. 7-8, a socket assembly 100 for receiving a BGA package and adapted for ***insertion*** into the circuit board 102 includes a plurality of

> spaced sockets 104 fixed in a base member 106, and a substantially rigid member 108 for reshaping the sockets. Each of the plurality of sockets 104 include a receiving portion 110 having a plurality of spaced fingers 112 and a pin portion 114, a part of which extends through the base member 106 for ***insertion*** into the circuit board 102....It is understood that in other embodiments, the socket assembly fits into other configurations such as ***surface mount***, or other package footprints known in the art. (Emphasis added.)

Many times, when the socket lead 114 is insertion fitted into the circuit board 102, the socket lead 114 is soldered or even wire-wrapped for making electrical contact within the circuit board. In addition, surface mount and other package footprints also typically include soldering of the socket lead 114 for making electrical contact within the circuit board.

With such soldering of the socket lead 114, the socket lead 114 is not compressed against any contact pad. In fact, Pickles no where even remotely suggests a compression mount lead that is ***compressed*** against a contact pad of the circuit board. Pickles merely discloses insertion, surface mount, or footprint technology for the socket lead that would typically be ***soldered*** to the circuit board.

Because Pickles does not disclose, teach, or suggest all of the limitations of amended claims 1, 12, and 15, the rejection of claims 1, 12, and 15 under 35 U.S.C. §102(b) in view of Pickles should be withdrawn.

Claims 2 and 16 have been canceled.

Claims 3, 4, 7-8, 10, and 11, which depend from and further limit claim 1, are allowable for at least the same reasons that claim 1 is allowable as stated above.

Claims 13 and 14, which depend from and further limit claim 12, are allowable for at least the same reasons that claim 12 is allowable as stated above.

Claims 17, 18, 21-22, and 24-25, which depend from and further limit claim 15, are allowable for at least the same reasons that claim 15 is allowable as stated above.

In addition, claims 3 and 17 have been amended to recite that the actuation plate is pressed toward the forking leads in only one lateral direction that is perpendicular to the length of the pin.

In contrast, referring to Figs. 1-3, and 12-15 of Pickles, the rigid member 306 forms a ring 322. As the rigid member 306 is moved vertically upward, a force is exerted on the fingers 318 in all 360° of lateral directions as the ring 322 of the rigid member 306 surrounds the fingers 318 in Pickles. Moreover, as the rigid member 306 is moving vertically upward, a force in the vertical direction toward the IC device 312 is also exerted on the fingers 318. Thus, Pickles does not disclose or suggest the limitation of the actuation plate being pressed toward the forking leads in only one lateral direction that is perpendicular to the length of the pin.

Rejection of Claims 5 and 19 under 35 U.S.C. §103(a)

Claims 5 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as "Pickles") in view of Applicants' Admitted Prior Art (hereafter referred to as "AAPA"). Applicants respectfully traverse this rejection.

Claim 5, which depends from and further limits claim 1, is allowable for at least the same reasons that claim 1 is allowable as stated above.

Claim 19, which depends from and further limits claim 15, is allowable for at least the same reasons that claim 15 is allowable as stated above.

Rejection of Claims 6 and 20 under 35 U.S.C. §103(a)

Claims 6 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as "Pickles") in view of U.S. Patent No. 6,558,182 to Ohkita et al. (hereafter referred to as "Ohkita"). Applicants respectfully traverse this rejection.

The rejection of claims 6 and 20 under 35 U.S.C. §103(a) as being unpatentable over Pickles in view of Ohkita is not appropriate because a prima facie case of obviousness cannot be established.

In giving an obviousness rejection, the Examiner bears the initial burden of factually supporting a prima facie conclusion of obviousness. (See, MPEP, §2142). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be ***some suggestion or motivation***, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, ***the prior art references*** must teach or suggest ***all the claim limitations***. (See, MPEP, §2142.) (Emphasis added.)

The rejection of claims 6 and 20 under 35 U.S.C. §103(a) as being unpatentable over Pickles in view of Ohkita is not appropriate because *inter alia* these prior art references fail to teach or suggest all the claim limitations and because there is no motivation or suggestion in these references to combine or modify these references to the present invention.

Claims 6 and 19 have been amended to recite that the compression mount lead is comprised of a J-bend lead that is ***compressed*** against the contact pad of the circuit board. The examiner cites the tail 108 of Ohkita for such a J-bend lead.

Applicants respectfully disagree with such a characterization of the tail 108 of Ohkita. The tail 108 of Ohkita is repeatedly described as a solder pad 108 that is soldered to the circuit board such as at the Abstract, lines 8-10 of Ohkita:

> ....Each terminal includes a base section retained in each cell and a tail extending beyond the housing for being ***soldered*** to the circuit board.... (Emphasis added.)

In addition, col. 1, lines 39-43 of Ohkita states:

...Terminals of both types have a base section received and securely retained in the cell of the housing and a tail extending from the base and beyond a lower face of the housing for being ***soldered*** to the circuit board...(Emphasis added.)

Furthermore, col. 2, lines 44-48 of Ohkita states:

....Each dual-beam terminal comprises a base section received and firmly retained in the corresponding cell and a tail extending from the base section and beyond the housing for being ***soldered*** to the circuit board....(Emphasis added.)

Additionally, col. 3, lines 34-42 of Ohkita states:

....A tail section 106 extends from a lower edge of the base section 102. The tail section 106 comprises a ***solder*** pad 108 connected to the lower edge of the base section 102 by a neck portion 109. The neck portion 109 is bent an angle of approximately ***90 degrees*** whereby a second major surface of the ***solder*** pad 108 is substantially normal to the first major surface of the base section 102.

The ***solder*** pad 106 can carry a ***solder*** ball (not shown) for connecting the terminal 100 to a circuit board (not shown) by Surface Mount Technology (SMT)....(Emphasis added.)

Thus, Ohkita discloses an ***L-shaped*** (angled 90 degrees) tail section 106 with a solder pad 108 for being ***soldered*** to the circuit pad. With such soldering, the solder pad 108 is solder-connected to the circuit board and is not compressed onto the circuit board in Ohkita. Thus, the tail section with the solder pad 108 of Ohkita cannot be characterized as a J-bend that is ***compressed*** against the contact pad of the circuit board

In addition, by repeatedly touting the advantage of the solder pad 108 being soldered to the circuit board, Ohkita teaches away from using a J-bend lead which is completely different from a soldered lead. A solder lead for the socket is permanently attached to the circuit board, whereas a J-bend lead is temporarily attached to the circuit board and is easily detachable from the circuit board.

Accordingly, a prima facie conclusion of obviousness of claims 6 and 20 cannot be established because Pickles and Ohkita fail to suggest or motivate all the claim limitations of

claims 6 and 20, and the rejection of claims 6 and 20 under 35 U.S.C. §103(a) should be withdrawn.

Rejection of Claims 9 and 23 under 35 U.S.C. §103(a)

Claims 9 and 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,766,021 to Pickles et al. (hereafter referred to as "Pickles"). Applicants respectfully traverse this rejection.

The rejection of claims 9 and 23 under 35 U.S.C. §103(a) as being unpatentable over Pickles is not appropriate because a prima facie case of obviousness cannot be established.

In giving an obviousness rejection, the Examiner bears the initial burden of factually supporting a prima facie conclusion of obviousness. (See, MPEP, §2142). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be ***some suggestion or motivation***, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, ***the prior art references*** must teach or suggest ***all the claim limitations***. (See, MPEP, §2142.) (Emphasis added.)

The rejection of claims 9 and 23 under 35 U.S.C. §103(a) as being unpatentable over Pickles is not appropriate because *inter alia* Pickles fails to teach or suggest all the claim limitations and because there is no motivation or suggestion in Pickles to be modified to the present invention.

Claims 9 and 23 recite a back plate mounted to a back-side of the circuit board when the socket is mounted to a front-side of the circuit board.

The back plate provides added support for preventing warping of the circuit board and the socket when the socket is compression mounted to the circuit board. However, Pickles no where

even remotely mentions compression mounting of the socket to the circuit board. Pickles merely discloses through-hole insertion of the socket leads into the circuit board (as illustrated in Fig. 8 of Pickles) or surface mount foot-print technology which typically includes soldering the socket leads to the circuit board, as stated at col. 4, lines 39-61 of Pickles:

> In another embodiment shown in Figs. 7-8, a socket assembly 100 for receiving a BGA package and adapted for ***insertion*** into the circuit board 102 includes a plurality of spaced sockets 104 fixed in a base member 106, and a substantially rigid member 108 for reshaping the sockets. Each of the plurality of sockets 104 include a receiving portion 110 having a plurality of spaced fingers 112 and a pin portion 114, a part of which extends through the base member 106 for ***insertion*** into the circuit board 102....It is understood that in other embodiments, the socket assembly fits into other configurations such as ***surface mount***, or other package footprints known in the art. (Emphasis added.)

Thus, without compression mounting of the socket leads to the circuit board, one of ordinary skill in the art would not be motivated to spend the extra cost and time of adding the extra back-plate to the back-side of the circuit board.

In addition, the Examiner is respectfully directed to the MPEP at §2143 which states that the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient ***by itself*** to establish prima facie obviousness, and that the mere fact that references ***can be*** combined or modified does not render the resultant combination or modification obvious ***unless the prior art also suggests the desirability of the combination or modification***.

If the Examiner disagrees that Pickles fails to suggest or motivate all the limitations of claims 9 and 23, the Examiner is respectfully requested to point out ***exactly where***, including ***specific column(s), line number(s), and/or figure element(s)*** in Pickles such a suggestion or motivation may be found. In particular, Pickles is not at all concerned with warping of the circuit board and socket since compression mount of the socket to the circuit board is not

mentioned. Rather, insertion mounting and soldering of the socket leads to the circuit board are disclosed which would not result in warping of the circuit board and socket.

The Examiner merely states "it would have been obvious to one having ordinary skill at the time the invention was made to add on the socket system of Pickles an extra plate mounted to the back-side of the circuit board...."

However, the Examiner is respectfully reminded that for establishing an obviousness rejection under 35 U.S.C. §103(a), the standard is not whether it would have been "obvious to one having ordinary skill in the art". Rather, the MPEP clearly states that ***the prior art references*** must teach or suggest all the claim limitations.

Accordingly, a prima facie conclusion of obviousness of claims 9 and 23 cannot be established because Pickles fails to suggest or motivate all the claim limitations of claims 9 and 23, and the rejection of claims 9 and 23 under 35 U.S.C. §103(a) should be withdrawn.

Further Search Should Not Be Required

Furthermore, please note that the amendments to claims 1, 3, 6, 12, 15, 17, and 20 are for further clarification of meaning of terms such as "lateral direction of force." Such meaning was conveyed in the remarks and arguments in the Response of July 7, 2004 such that the Examiner should not have to conduct a further prior art search. Because a new search is not required, the claims should now be in condition for allowance.

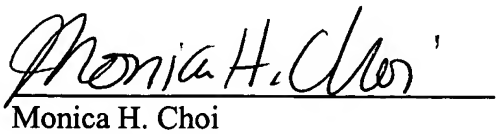
If the Examiner disagrees, a prompt Advisory Action is respectfully requested such that a RCE and/or an Appeal may be timely filed before the 3-month dead-line from the Final Office Action dated August 27, 2004. Note that this Response has been filed before the 2-month dead-line from the Final Office Action dated August 27, 2004.

Conclusions

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. Please feel free to contact the undersigned should any questions arise with respect to this case that may be addressed by telephone.

Respectfully submitted,
for the Applicant(s)

Dated: October 21, 2004

By: 

Monica H. Choi
Reg. No. 41,671
Law Office of Monica H. Choi
P.O. Box 3424
Dublin, OH 43016-0204
(614) 789-0240
(614) 789-0241 (Fax)

CERTIFICATE OF MAILING

The undersigned hereby certifies that the foregoing AMENDMENT AND RESPONSE is being deposited in the United States Postal Service, as first class mail, postage prepaid, in an envelope addressed to Commissioner for Patents, Box AF, P.O. Box 1450, Alexandria, VA 22313-1450, on this 21st day of October, 2004.

Monica H. Choi
Reg. No. 41,671